

**T E C H N I C A L B R I E F****Update to Standardized Analytical Methods for Laboratories****Background**

The Response Capability Enhancement (RCE) program of EPA's National Homeland Security Research Center (NHSRC) is responsible for developing methods and tools that will be useful in planning for and responding to homeland security events. RCE's engineers, scientists, and project managers furnish technical support for emergency responders, laboratories, and management in EPA's Office of Research and Development.

An emergency event could result in a flood of possibly contaminated samples to be analyzed in many different laboratories. In order for all the results to be comparable, the labs need to perform these analyses in a uniform way. RCE played a leading role in developing a set of methods for the labs to use, and has recently updated and expanded that set of methods.

**The Initial Methods Compendium**

RCE has developed a compendium called Standardized Analytical Methods for Use During Homeland Security Events, referred to as the SAM. The standardized analytical methods are for measuring specific contaminants that might be associated with a terrorist attack. They are to be used to evaluate the nature and extent of contamination, as well as the effectiveness of decontamination.

For the first draft of the SAM, RCE established an Analytical Methods Workgroup consisting of representatives of offices throughout EPA and a number of other agencies such as the Centers for Disease Control and Prevention, the Department of Defense, and the Department of Agriculture. These experts surveyed many available analytical methods. Their objective was to balance the need to use existing techniques and methodologies against the goal of consistent analytical results. The workgroup eventually selected analytical and sample preparation methods for measuring 82 chemical agents in aqueous/liquid, solid, oily solid, and air matrices, as well as 27 biological agents in water, dust, and aerosol matrices. This initial SAM, Revision 1.0, was published in 2004.

The Recent Update to the SAM

During 2005 the SAM was expanded in four areas. Revision 2.0 covers several persistent chemical warfare agent degradation products and radioisotopes, includes a drinking water matrix, provides methods for determining the viability of biological organisms, and adds a section for biotoxin analytes. In addition, the methods included in SAM Revision 1.0 were updated where necessary to reflect more recent or appropriate methodologies.

Future Directions

RCE plans to continue to update the SAM document periodically to address the changing needs of homeland security, to reflect improved analytical methods and new technologies, and to add information on new or changed threat agents as needed. Supporting documents and addenda to address new response issues or provide guidance may also be appropriate. A review by a team of scientists is scheduled for 2006, and Revision 3.0 will be issued after that review.

RCE is developing and validating Standardized Analytical Protocols (SAPs) based on the methods that are listed in the SAM. These will provide information on specific method performance and data quality objectives. RCE also hopes to work with other government agencies and the private sector to identify research gaps and establish a laboratory accreditation system.

Information Availability

EPA has posted the September 2005 update to the 2004 SAM (Revision 1.0) on its Web site.

Standardized Analytical Methods for Use During Homeland Security Events, Revision 2.0 can be found at <http://www.epa.gov/nhsrc/pubs/reportSAM092905.pdf>.

For more information, visit the NHSRC Web site at www.epa.gov/nhsrc.

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